CLAIMS:

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- 1. Method for increasing the sensitivity of a chain of amplifiers that comprises the steps of: amplifying a signal by means of a first amplifier with a gain factor $A_1 = A_{1,m} * \Delta A_1$, where $A_{1,m}$ denotes a constant gain factor and ΔA_1 denotes a gain factor variation with $1 \le \Delta A_{1,min} \le \Delta A_{1} \le \Delta A_{1,max}$, further amplifying the signal by means of a second amplifier with a controllable gain factor $A_2 \leq A_{2,max}$, where variations $\triangle A_1$ of the gain of the first amplifier are compensated by reducing the gain A2 of the second amplifier, so that the difference between the chain gain factor $A_C=A_1*A_2$ and a target chain gain factor $A_T \leq A_{T,max}$ becomes zero, characterised in that the signal at the output of the second amplifier is additionally fed into a divider that applies a fixed factor $A_3 \le 1$ to its input, that variations $\triangle A_1$ of the gain factor A_1 of the first amplifier as well as the fixed factor A₃ are at least partially compensated by the gain factor A₂ of the second amplifier, so that the difference between the chain gain factor A_C'=A₁*A₂*A₃ and the target chain gain factor A_T becomes minimum, and that the fixed factor A₃ is chosen so that there exist at least some combinations of values A A I and AT for which said difference can be forced to zero, and some combinations of values ΔA_1 and A_T , for which said difference can no longer be forced to zero due to the limitation $A_2 \leq A_{2,max}$.
- Method according to claim 1, characterised in that said factor A₃ is
 chosen so that said difference can be forced to zero for large values of the variation
 ΔA₁ and/or small values A_T, and that said difference can no longer be forced to zero for small values of the variation Δ A₁ and/or large values A_T.
- Method according to any of the claims 1-2, characterised in said fixed
 factor A₃ is further chosen so that for a group of target chain gain factors A_T, the second amplifier works with a gain factor A₂ that is close to its maximum gain factor A_{2,max},

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that for these target chain gain factors, the greatest possible independence of the gain factor A_2 from the variation Δ A_1 is achieved and that a difference between the chain gain factor A_C ' and the target chain gain factor A_T is accepted especially for smaller values of Δ A_1 .

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- 4. Method according to claim 3, characterised in that group of target chain gain factors A_T are the most frequently occurring target chain gain factors.
- 5. Method according to any of the claims 1-4, characterised in that the gain factor A₁ defines the product between the maximum gain factor of a tuner that down-converts a modulated Radio Frequency (RF) signal to a broadband Intermediate Frequency (IF) signal and the gain factor of an IF filter that transforms the broadband IF signal into a narrowband IF signal, where the gain factor of the IF filter is fixed and the maximum gain factor of the tuner varies, and that the gain factor A₂ represents the gain factor of an IF amplifier that amplifies the narrowband IF signal to produce an amplified narrowband IF signal that is fed into a demodulation instance to produce a demodulated signal.
- Method according to claim 5, characterised in that said at least partial compensation of said variations ΔA_1 of the gain factor of the first amplifier as well as 20 of said fixed factor A₃ of the divider by controlling the gain factor A₂ of the second amplifier to achieve a minimum difference between the chain gain factor A_C'=A₁*A₂*A₃ and the target chain gain factor A_T represents a part of one out of the two steps of a joint control of the gains of the tuner and the IF amplifier, which is performed in order to force the signal level of the amplified narrowband IF signal at the input of the demodulator to a constant target value, where for steadily increasing RF signal levels said two steps are defined as: a first step of keeping the gain factor of the tuner at its maximum value and varying the gain factor of the IF amplifier so that the difference between the chain gain factor A_C'=A₁*A₂*A₃ and the target chain gain factor A_T, which steadily reduces with the steadily increasing RF signal levels, becomes minimum, until the broadband IF signal exceeds a dedicated dynamic range at a takeover point, and a second step of not further reducing the gain factor A2 from said takeover point on and starting to steadily reduce the gain factor of the tuner below its

maximum value instead.

7. Method according to claim 6, characterised in that for said combinations of values Δ A₁ and A_T, for which said difference between the chain gain factor A_C' and the target chain gain factor A_T can no longer be forced to zero due to the limitation A₂ \leq A_{2,max} and the signal level of the amplified narrowband IF signal at the input of the demodulator falls below the constant target value accordingly, the degradation of the quality of the demodulated signal compared to the case when said difference can be forced to zero is insignificant.

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- 8. Device for increasing the sensitivity of a chain of amplifiers, comprising: a first amplifier for amplifying a signal by a gain factor $A_1 = A_{1,m} * \Delta A_1$, where $A_{1,m}$ denotes a fixed gain factor and ΔA_1 denotes a gain factor variation with $1 \le \Delta A_{1,min} \le \Delta A_1 \le \Delta A_{1,max}$, a second amplifier for further amplifying the signal by a controllable gain factor $A_2 \leq A_{2,max}$, where the second amplifier compensates the variations ΔA_1 of the gain of the first amplifier, so that the difference between the chain gain factor $A_C=A_1*A_2$ and a target chain gain factor $A_T \le A_{T,max}$ becomes zero, characterised in that the device further comprises a divider that is arranged behind the second amplifier and applies a fixed factor $A_3 \le 1$ to its input, where the second 20 amplifier at least partially compensates the variations ΔA_1 of the gain factor A_1 of the first amplifier as well as the fixed factor A3, so that the difference between the chain gain factor A_C'=A₁*A₂*A₃ and the target chain gain factor A_T becomes minimum, and where the fixed factor A₃ is chosen so that there exist at least some combinations of values $\triangle A_1$ and A_T for which said difference can be forced to zero, and some 25 combinations of values ΔA_1 and A_T , for which said difference can no longer be forced to zero due to the limitation $A_2 \leq A_{2,max}$.
 - 9. Device according to claim 8, characterised in that the first amplifier represents both a tuner that down-converts a modulated Radio Frequency (RF) signal to a broadband Intermediate Frequency (IF) signal and an IF filter that transforms the broadband IF signal into a narrowband IF signal, where the gain factor of the IF filter is

fixed and the maximum gain factor of the tuner varies due to the manufacturing process, and that the second amplifier represents an IF amplifier that amplifies the narrowband IF signal to produce an amplified narrowband IF signal that is fed into a demodulation instance to produce a demodulated signal.

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10. Device according to any of the claims 8-9, characterised in that said divider is a voltage divider.